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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,226	10/31/2005	Tae-Uk Jung	5145-0101PUS1	8382
2292 7590 01/30/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER NGUYEN, TRAN N	
			ART UNIT	PAPER NUMBER
			2834	
SHORTENED STATUTORY PERIOD OF RESPONSE		NOTIFICATION DATE	DELIVERY MODE	
3 MONTHS		01/30/2007	ELECTRONIC	

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/532,226

Applicant(s)

JUNG ET AL.

Examiner

Tran N. Nguyen

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 9, 10, 13, 17-33, 35-37 and 39-46 is/are allowed.
6) ☒ Claim(s) 1, 3, 4, 11, 12, 14-16, 34, 38 and 47 is/are rejected.
7) ☒ Claim(s) 2, 5-8 and 12 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 31 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. **Claims 1, 3, 4, 11, 12, 15 and 16** are rejected under 35 U.S.C. 102(b) as being fully anticipated by **Fong et al (GB 1,206,112)**.

Regarding claim 1, **Fong** discloses a rotor (fig 8) for a for a line-start reluctance motor, wherein the rotor comprising: a core having an axis-coupling hole in a coupling direction of a shaft; a plurality of bars (2) formed around in the periphery of the core (lines 83-85); and a plurality of flux barriers, (i.e., two flux barriers located on left and right sides of the axis coupling hole, as shown in fig 8) one and the other ends of the flux barriers approaching the bars formed in first and second areas facing each other at a predetermined angle on a central line of a first axis on a core plane vertical to the coupling direction, wherein the flux barriers passing through a third or fourth area between the first and second areas, and detour around the axis coupling hole so that intervals between the axis coupling hole and the flux barrier are substantially uniform (fig8); wherein:

Regarding claim 3, as depends from claim 1, the flux barriers are continuous (figs 2-8);

Regarding claim 4, the flux barriers are symmetric on a second axis vertical to the first axis on the core plane;

Regarding claim 11, a width of the flux barriers is smaller than that of the bars that the flux barriers approach (fig 8);

Regarding claim 12, intervals between the flux barriers and the bars that the flux barriers approach are constant (fig 8)

Regarding claim 15, some of the bars in the first and second areas are not adjacent to the flux barriers (fig 8);

Regarding claim 16, intervals between the bars and the outer circumference of the core are all the same.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 14, 34, 38 and 47** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Fong in view of ordinary skills of a worker in the art.

Fong discloses a rotor (figs 2-8) for a for a line-start reluctance motor, wherein the rotor comprising: rotor for a line-start reluctance motor, comprising:

a core having an axis-coupling hole in a coupling direction of a shaft;

a plurality of bars formed in the periphery of the core; and

a plurality of flux barriers having their both ends aligned in one direction to approach the bars respectively, and the width of the barriers are constant (figs 2-8).

However, Fong does not disclose that the width of the flux barriers being substantially equal to that of the bars which both ends of the flux barriers approach.

Nevertheless, those skilled in the art would understand that the flux barrier's width is determined based on the width of the conductors and the size of the rotor core so that the flux

flow is at an appropriate rate and flow easily to ensure efficiency of the rotor. Furthermore, those skilled in the art would understand that configuring the flux barrier's width to be substantially equal to that of the bars requires only necessary skills in the art. **Evidently, claim 34 previously recites the flux barrier's width is either equal to or smaller than that of the conductor.** The original recitation of claim 34 is a proof that determine the flux barrier's width being smaller or equal to that of the conductor is a matter of obvious engineering design choice based on the requirements for a particular industrial application of the motor with such rotor. And, evidently the applicant's intention to overcome the Fong ref by deleting the flux barrier's width to be smaller, as originally claimed, and set the flux barrier's width to be so-called "substantially equal" to that of the conductor bar.

By the same token, those skilled in the art would understand that configuring a width of the outer circumferences of the bars disposed in the vertical direction to the alignment direction of the flux barriers is larger than that of the outer circumferences of the bars disposed in the alignment direction of the flux barriers would be determined based on the width of the conductors and the size of the rotor core for enhancing the flux flow.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the rotor by configuring a width of the flux barriers to be substantially equal to that of the bars disposed in the alignment direction of the flux barriers, or a width of the outer circumferences of the bars disposed in the vertical direction to the alignment direction of the flux barriers is larger than that of the outer circumferences of the bars disposed in the alignment direction of the flux barriers. Doing so would improve the performance of the motor and ensure not overly obstructing the magnetic flux thereof. Furthermore, it has been held that a change in size or shape is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955) (emphasis added).

Allowable Subject Matter

Claims 2, 5-8 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 9-10, 13, 17-33, 35-37, 39-46 are allowed.

Response to Arguments

Applicant's arguments, filed 12/7/06, regarding the rejections against claim 1 and the corresponding dependent claims therefrom, have been fully considered but they are not persuasive.

The Fong reference does show a plurality of flux barriers, i.e., two flux barriers located on left and right sides of the axis coupling hole, as shown in fig 8, one and the other ends of the flux barriers approaching the bars formed in first and second areas facing each other at a predetermined angle on a central line of a first axis on a core plane vertical to the coupling direction, wherein the flux barriers passing through a third or fourth area between the first and second areas, and detour around the axis coupling hole so that intervals between the axis coupling hole and the flux barrier are substantially uniform (fig8).

Claim 1 recites a plurality of flux barriers, which is shown by Fong's fig 8 having two (i.e. plural) flux barriers located on left and right sides of the axis coupling hole, and these two flux barriers approaching the bars formed in first and second areas facing each other at a predetermined angle on a central line of a first axis on a core plane vertical to the coupling

direction, wherein the flux barriers passing through a third or fourth area between the first and second areas, and detour around the axis coupling hole.

The term “detour around” is understood as travel or passing from one place to another, according to the broad definition in Merriam Webster dictionary the term “around” means here and there, from one place to another, since the claimed language does not recite that the detour is encircling the hole; therefore, based on the broad definition, Fong’s fig 8 does shows two flux barriers detour around the hole.

Also, the applicant’s argument seems to imply that on each side of the axis-coupling hole, there are at least two (i.e., plural barriers) detour around the axis coupling hole so that intervals between adjacent flux barriers on each side of the axis coupling hole are substantially uniform.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

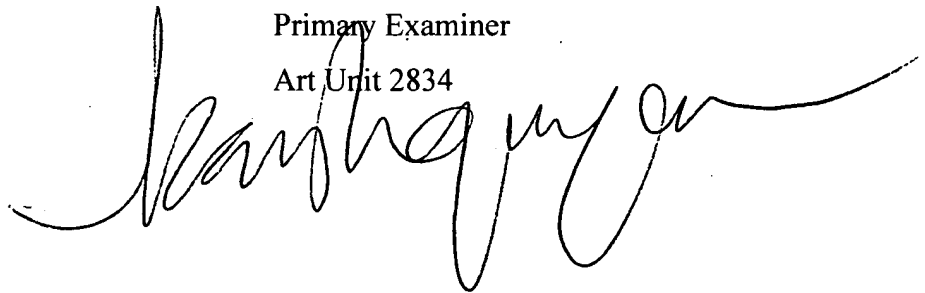
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran N. Nguyen whose telephone number is 571-272-2030. The examiner can normally be reached on 7:00 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. **(Note: Use this Central Fax number 571-273-8300 for all official response.)**

Do **not** use the Examiner's RightFax number without informing the Examiner first because, according to the USPTO policy, any document being sent via RightFax is treated as unofficial response and will not be officially dated until it is routed to the Central Fax.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Tran N. Nguyen
Primary Examiner
Art Unit 2834

A handwritten signature in black ink, appearing to read 'Tran N. Nguyen', is written over the typed name and title.